Lake Hjälmaren pikeperch fish-trap and gillnet fisheries

Surveillance Audit: Stage 4

Certificate Number: MML-FC-012 / MML-FC-013

Intertek Moody Marine
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1. GENERAL INFORMATION

Scope against which the surveillance is undertaken: MSC Principles and Criteria for Sustainable Fishing as applied to the Lake Hjälmaren pikeperch fish trap and gillnet fisheries.

Species: Pikeperch, *Sander lucioperca*

Area: Lake Hjälmaren, Sweden

Method of capture: Fish trap and gillnet

Date of Surveillance Visit:	**Date: 20-21 Sept 2011**			
Initial Certification	**Date: 7th August 2006**		**Certificate Ref:** MML-FC-012 / MML-FC-013	
Surveillance stage	**1st**	**2nd**	**3rd**	**4th**
Surveillance team:	**Assessor:** Sture Hanson**,** Seran Davies & A. Hough			
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2. INTRODUCTION

The Lake Hjälmaren pikeperch fish trap and gillnet fisheries were the first freshwater fisheries to gain certification under the Marine Stewardship Councils' (MSC) certification scheme. Certification was awarded in August 2006 with five conditions which were identical between the two fisheries (fish trap and gill-net). The five conditions for certification as well as the optional recommendations are listed for reference in Appendix 1 of this report.

The first surveillance audit was completed in August 2007 and the second audit in September 2008. On completion of these two previous surveillance audits, two of the five conditions were regarded as being completed, the relevant performance indicators were rescored and the conditions were closed. In addition, the optional recommendations issued at the time of certification were also considered as being fulfilled. At the time of the third surveillance audit in August 2009 the remaining condition was evaluated as running to the timescale set at the time of certification.

This following report details the findings of the fourth annual surveillance audit which was carried out at Lake Hjälmaren and Stockholm, Sweden from 19th-21st September 2011. The main purpose of the audit was to identify any major changes which may have occurred within the fishery and/or the management structure, and to identify the compliance of the fishery with the remaining condition of certification.

3. INFORMATION SOURCES

This surveillance audit was completed using information collated from the following sources:

Meetings and Interviews

1. Swedish Institute for Freshwater Research (September 21st 2011)
   Ulrika Beier

2. Local fishermen (September 20th 2011)
   Lennart Karlsson

3. Chairman of the Fisherman's Federation (September 20th 2011)
   Jan-Erik Eriksson

Reports

Degerman, E., Nyberg, P. Sandstrom, A. & Beier, U. Hojt minimimatt pa gos ger okad avkastning I fisket. 2009-08-06. Fiskeriverkets Sotvattenslaboratorium.

Swedish Institute for Freshwater\research annual test fishing information for Lake Hjälmaren pikeperch. Power point presentation by Ulrika Beier.

Standards and Guidelines used:

1. MSC Principles and Criteria for Sustainable Fishing
2. MSC Fishery Certification Methodology Version 6. September 2006
3. TAB Directives - all

4. RESULTS & CONCLUSIONS

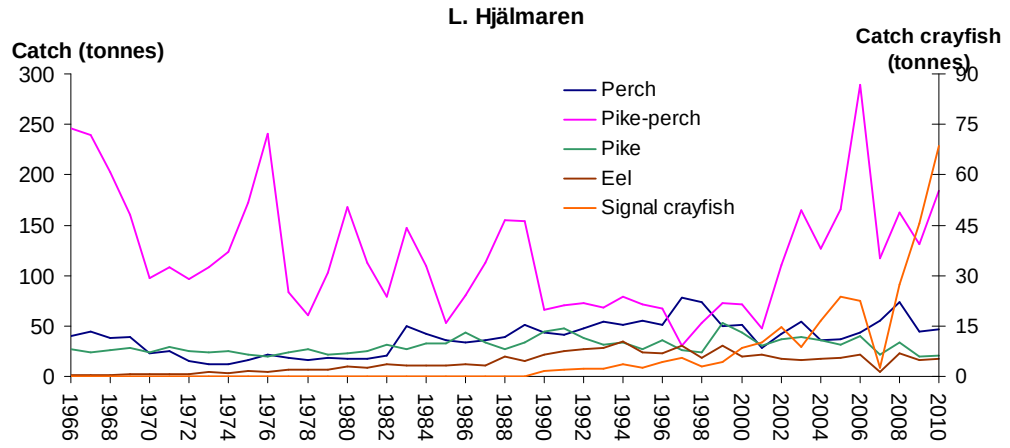
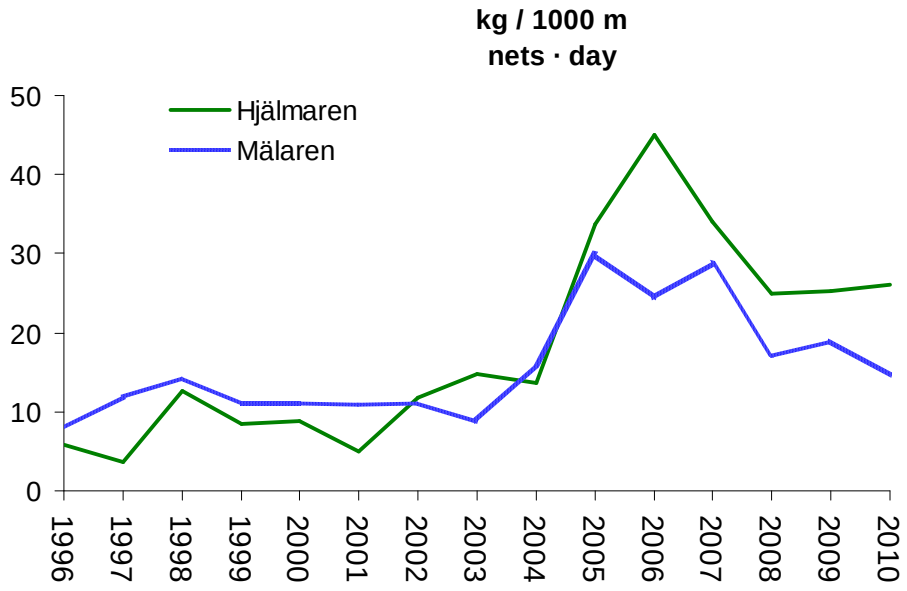
The Client Action Plan (CAP) stated the client's response to the conditions of certification and was appended to the final certification report. The progress of the CAP is examined at each surveillance audit and the results from the third audit are presented within the 'Observations' and 'Conclusion' sections in the tables below.

Following completion of the previous surveillance audits the following conditions were rescored and closed:

Condition of Certification 1: Reference levels and Decision rules.
Condition of Certification 2: Sex ratio and size at age
Condition of Certification 4: Recording of any bird by-catch
Condition of Certification 5: External review

Remaining condition:
Condition of Certification 3: Ecosystem objectives.

In addition, the optional recommendations were also considered as being completed by the results of the previous surveillance audits. Please refer to previous surveillance audit reports for details (available from www.msc.org or Intertek-Moody Marine Ltd).

Item	Comments
1	**Stock status and Catch Data**
Update on Sock Status	Stock status is assessed through an annual test fishing programme which continue to take place annually (every August) across the lake and will do so for the foreseeable future. These record the lake's fish population structure, number and distribution using multi mesh gill nets and trawls with echo-sounder for fish location at specific locations across the lake. Length-frequency data, species statistics and otoliths are all collected for analysis and the findings are presented within an annual report. This test fishing will occurs every August for the foreseeable future. Results from the 2009 survey were presented at the audit along with the long term data set (the 2010 survey results had been analysed but not yet written up, the surveillance audit team were able to review the analysed data). Supporting information for stock status comes from a hydroacoustic survey undertaken at the Lake in 2009 and also through data from the fishery such as landings, spring and autumn age sample surveys and comparisons with information from the neighbouring Lake Malaren. Stock status of the Lake Hjalmaren pikeperch is considered as being good (based on the assessment of the Y2 class which is used to predict stock 1-2 years ahead).
Total catch in most recent fishing year	
CPUE	
Client share of TAC	N/A- all fishermen on the lake participate in the certification.

Item	Comments
2	**Condition of Certification 3: Ecosystem objectives**
Original Statement of Condition	**Action required:** As for the pikeperch stock, there is an ongoing analysis of commercial species stock status relative to historical data which would allow management actions to be taken as appropriate to modify fishing pressure. However, management objectives are not explicitly stated. It is not obvious that ecosystem shifts would arise from current fishing activity. However, as a number of species are taken in the fishery, and pikeperch (the main target species) is a top predator in the system, this is possible. Monitoring of target and by-catch species in catches, and scientific monitoring of key prey species such as smelt and roach, should therefore be undertaken. A plan of possible scenarios and corresponding responses should then be developed. This work should integrate with any other wider ecosystem monitoring (e.g. water quality, plankton) undertaken in the lake, as appropriate. **Timescale:** Data collection of catches should be initiated during the first fishing season post certification and thereafter an ongoing monitoring programme put in place. A plan for additional scientific monitoring should be in place within **18 months** of certification and implemented within **1 year** afterwards (i.e. within **30 months** of certification). Development of scenarios and corresponding actions should be in place within the term of the current certification (i.e. within 5 years of certification) by which time an appropriate dataset should be available.
Relevant scoring indicators	2.1.4.5, 3.A.3.1, 3.A.3.2
Action Plan	A test fishing program according to the European standard with multi mesh gill-nets will start in August 2006 in a part of Lake Hjälmaren (Mellanfjärden), which probably is the most important nursery area for pikeperch in the lake. This test fishing will also yield good data concerning the whole fish community and additional data concerning the recruitment of pikeperch. The gill-net catch will give a measure of the recruitment of pikeperch at least one year before the same year class will be caught in the fish-traps (see Condition 1 above). Otoliths for ageing will be sampled from the pikeperch. During August two persons will accompany four fishermen distributed over the lake and record all species of fish caught, count all specimens and measure the length of all fish caught in the fish-traps. As these fish-traps have fairly small mesh size, a number of other fish species will be caught. This will, in the long run, give results concerning the status of the populations of most species in the lake. Species not caught in these gears are mainly smelt (*Osmerus eperlanus*), ruffe (*Acerina cernua*) and rudd (*Scardinius erythrophthalmus*). Smelt and ruffe will, however, be caught in the test fishing gill-nets. Rudd occur very close to shore, mostly among reeds, and is unimportant as a prey species. The water management organisation of the lake is monitoring water quality, phytoplankton, zooplankton and benthic invertebrates and it is easy to integrate these data. Water quality data, in particular nitrogen and phosphorus, are important as indicators of lake productivity.
Observations from Surveillance Audit (4)	Test fishing programmes continue to take place annually (every August) across the lake and will do so for the foreseeable future. These record the lake's fish population structure, number and distribution using multi mesh gill nets and trawls with echo-sounder for fish location at specific locations across the lake. Length-frequency data, species statistics and otoliths are all collected for analysis and the findings are presented within an annual report. This test fishing will take place every August for the foreseeable future. Results from the 2009 survey were presented at the audit along with the long term data set (the 2010 survey had just been completed and the results had been analysed but not yet written up). The Water Management Authority continues to monitor water quality, plankton and benthic invertebrates of Lake Hjälmaren as a measure of lake productivity. Results of such monitoring are made publicly available and are collated and integrated with the current work relating to

	the fishery.
Conclusion	A review of the current monitoring results has been undertaken and the assessment team are satisfied that an appropriate data set is being collated and that the requirements of this condition are met. All such data are regularly evaluated by the management team and it is possible to impose restrictions on the fishery should evidence indicate that a modification of fishing pressure is required. Ongoing research for this fishery continues for the foreseeable future with stock status being assessed on an annual basis along with the ecological status of the lake. There are no plans to curtail this monitoring which is considered as being a beneficial result of certification. The new management authority (see table 5 below) wish to continue with an ecosystem based approach to fishery management (U.Beier, pers comm). Environmental monitoring continues to be undertaken on the Lake in keeping with the requirements from the Water Framework Directive.

4	Any complaints against the certified operation; recorded, reviewed and actioned
Observations from Surveillance Audit (2)	The audit discovered there to have been no complaints received against the certified fishery (either the fishermen or the management bodies) during 2009/10.

5	Any relevant changes to legislation or management regime.
Observations from Surveillance Audit	Following this surveillance audit it is evident that there have been changes to the management organisations involved with this fishery. No alterations to personnel or management bodies occurred in 2010 but in 2011 the following changes occurred: As of 1st July 2011 the Swedish Board of Fisheries, which was responsible for managing this fishery, has been absolved into a new environmental organisation: 'Havs och Vattenmyndigheten' (Swedish Agency for Marine and Water Management). However, this organisation has not been given control of the Lake Hjälmaren pike perch fishery. This responsibility has remained with the personnel who were previously with the Swedish National Board of Fisheries and have now been absorbed into the Institute of Freshwater Research within the Department of Aquatic Resources at the Swedish University of Agricultural Sciences. The actual management organisation responsible for this fishery has therefore been disbanded; however, the actual process, systems and personnel responsible for this fishery remain unchanged they are just operating from a different organisation. There have been no significant changes in personnel managing this fishery, with the exception of the retirement of Per Nyberg in 2010 who led the management team for this fishery. Persons responsible now for this fishery's management have all previously worked with this fishery and are aware of their roles and responsibilities. Following discussion with the fishermen and the scientists it is clear that the changes incurred have not altered the way the fishery is managed and that fishermen's responsibilities have also not been altered in terms of how they report catches and surveillance/monitoring of the fishery. It is concluded that the disbanding of the Swedish National Board of Fisheries has not altered the way the/process of fishery management for the Lake Hjälmaren pikeperch fishery in anyway which would alter certification. No alteration to management or personnel occurred during 2010.

6	Overall conclusions from Surveillance Audit (4)
This fourth surveillance audit has shown the management of this fishery to have addressed the outstanding condition of certification and to have actively chosen to continue into the future with the collection of data/monitoring programme	

which was originally designed to fulfil the requirements of condition 3:

Condition of Certification 3: Ecosystem objectives. This condition is considered as being effectively met and is closed.

The following changes in management have taken place in 2011:

- The Swedish Board of Fisheries has been disbanded and personnel responsible for managing this fishery are now part of the Institute for Freshwater Research. However, no changes to the actual management system have taken place that would detrimentally affect the performance of this fishery against the MSC standard and the fishery continues to meet the requirements of the MSC Standard.

The Moody Marine assessment team is pleased to recommend that MSC Certification should continue for the Lake Hjälmaren trap net and gill-net fisheries.

CR v 1.1 section 27.22 Surveillance frequency does not apply as this is S4

Exceptional extension to fishery certificate

Activity	Further details
The fishery was certified on 07 Aug 2006	http://www.msc.org/track-a-fishery/certified/inland/lake-hjalmaren-pikeperch/assessment-downloads-1/PubCertRep_GillNet.pdf
The first, second and third surveillance reports have taken place although the timing has varied	http://www.msc.org/track-a-fishery/certified/inland/lake-hjalmaren-pikeperch/assessment-downloads
The site visit for the 4th surveillance audit and reassessment was scheduled for 4-10 Mar2011 but did not occur.	http://www.msc.org/track-a-fishery/certified/inland/lake-hjalmaren-pikeperch/assessment-downloads-1/02.02.10-stakeholder-notification-surveillance-audit-no4-lake-harlmaren-pike-perch.pdf http://www.msc.org/track-a-fishery/certified/inland/lake-hjalmaren-pikeperch/assessment-downloads-1/07.05.2010-lake-hjalmaren-stakeholder-notification-surveillance-audit-cancellation.pdf
IMM asked for a variation on 24 Mar 2011 to delay surveillance 4 until the reassessment site visit	http://www.msc.org/track-a-fishery/certified/inland/lake-hjalmaren-pikeperch/assessment-downloads-1/24.03.2011_MSC_Variation_Request_Form_Lake_Hjalmaren.pdf
MSC granted the variation on 24 Mar 2011.	http://www.msc.org/track-a-fishery/certified/inland/lake-hjalmaren-pikeperch/assessment-downloads-1/24.03.2011_Lake_Hjalmaren_variation_response.pdf
The site visit for surveillance 4 and reassessment was scheduled for 30th June-4th July 2011 but did not occur.	http://www.msc.org/track-a-fishery/certified/inland/lake-hjalmaren-pikeperch/assessment-downloads-1/31.05.2011_Lake_Hjalmaren_Surveillance_Audit.pdf
The site visit was delayed until 20-21 Sept 2011 due to team unavailability.	http://www.msc.org/track-a-fishery/certified/inland/lake-hjalmaren-pikeperch/re-assessment-documents/16.08.2011_Site_Visit_Notification.pdf

The visit 20-21 Sept 2011 was completed successfully and this surveillance 4 report confirms that the fishery is performing at least at the standard when first certified. MSC variation response 24 Mar 2011 included the following action for IMM

'Given the situation described above, the MSC is willing to grant a variation to the scheme requirements in this case, in order to ensure that surveillance and reassessment continues and that the fishery client is not penalized for certification body inaction. Consequently, Moody Marine must submit an amended certificate to the MSC for posting with a certificate expiry date that corresponds to the estimated date of recertification stated in the amended assessment timeline'.

IMM did not conduct this action. The fishery certificate expired 06 Aug 2011. IMM will therefore post the amended certificate dated 25 Aug 2011 at the same time as posting this surveillance report. IMM expect the fishery to be recertified no later than 25 Aug 2012.

4. APPENDICES

4.1 Appendix 1: Conditions and optional recommendations for certification

Conditions and optional recommendations set for the Lake Hjälmaren pikeperch trap and gillnet fisheries are listed below. These conditions are associated with 5 key areas of performance of the fishery, each of which addresses a number of Scoring Indicators.

Condition 1. Reference levels and decision rules

Action required: There is an ongoing, implicit, analysis of stock status relative to historical information which allows forecasts to be made for the pikeperch stock and management actions to be taken. However, there are no formalised reference/action points nor a documented, agreed, action plan (decision rules) to be put in place as and when stock levels reach such reference levels. This is potentially problematic if additional licensed gears, not currently used, were to be activated, thereby increasing total effort.

Management agencies shall formalise appropriate reference level(s) and corresponding actions. Agencies may wish to consider an approach based upon precautionary and limit reference levels.

Timescale: Current data on future recruitment indicates an ongoing healthy pikeperch population for at least 2-3 years. Draft reference levels and corresponding action plans should be prepared within **18 months** of certification. These should then be agreed and formalised within **9 months** of preparation. Reference levels and corresponding action plans should therefore be available within **27 months** of certification, allowing development during a period of healthy stock status.

Relevant Scoring Indicators: 1.1.3.2, 1.1.3.3, 1.1.3.5, 3A.3.1, 3A.3.2, 3A.6.2

Condition 2. Sex ratio and size at age

Action required: Age structure of pikeperch is suitably well established but there is no monitoring of sex structure in catches nor of size at age. To determine any shifts in population structure that could affect reproductive capacity, sex composition and size (both weight and length) at age should be established in catches. Size at age is also a good indicator of changes in feeding conditions (ecosystem conditions).

Timescale: Data collection should be initiated during the **first fishing season** post certification and thereafter an ongoing monitoring programme put in place. It may be most appropriate to monitor sex ratios in the gill-net fishery and size at age in the fish-trap fishery.

Relevant Scoring Indicators: 1.3.1.1, 1.3.1.2, 2.1.4.5

Condition 3. Ecosystem objectives

Action required: As for the pikeperch stock, there is an ongoing analysis of commercial species stock status relative to historical data which would allow management actions to be taken as appropriate to modify fishing pressure. However, management objectives are not explicitly stated.

It is not obvious that ecosystem shifts would arise from current fishing activity. However, as a number of species are taken in the fishery, and pikeperch (the main target species) is a top predator in the system, this is possible. Monitoring of target and by-catch species in catches, and scientific

monitoring of key prey species such as smelt and roach, should therefore be undertaken. A plan of possible scenarios and corresponding responses should then be developed.

This work should integrate with any other wider ecosystem monitoring (e.g. water quality, plankton) undertaken in the lake, as appropriate.

Timescale: Data collection of catches should be initiated during the **first fishing season** post certification and thereafter an ongoing monitoring programme put in place. A plan for additional scientific monitoring should be in place within **18 months** of certification and implemented within **1 year** afterwards (i.e. within **30 months** of certification). Development of scenarios and corresponding actions should be in place within the term of the current certification (i.e. within 5 years of certification) by which time an appropriate dataset should be available.

Relevant Scoring Indicators: 2.1.4.5, 3A.3.1, 3A.3.2

Condition 4. Recording of any bird by-catch

Action required: There is some incidental catch of piscivorous birds in fish traps and possibly also in gill-nets under open water conditions. Numbers of birds caught should be recorded and this data evaluated by relevant organisations in terms of its significance for affected populations. If significant, appropriate mitigation measured should be put in place.

Timescale: Data collection of catches should be initiated during the **first fishing season** post certification and thereafter an ongoing monitoring programme put in place. Presentation of data to the appropriate organisation should take place within **12 months** of certification and annually thereafter if necessary. Any mitigation actions should be implemented as soon as practically possible thereafter.

Relevant Scoring Indicators: 2.2.1.2

Condition 5. External review

Action required: An external review programme (independent of the current management authorities, contractors etc) of the management system should be implemented. This should be conducted on a periodic basis appropriate to the fishery. This could be undertaken, for example, by the Swedish Fishery Secretariat (Fiskesekretariatet).

Timescale: A plan for the content and timing of a review programme should be developed within **12 months** of certification. The first external review should be undertaken within **2 years** of certification.

Relevant Scoring Indicators: 3A.1.4

Recommendations

The assessment team has also made a number of recommendations. These are not required to maintain certification but would improve the performance of the fishery against the MSC Principles and Criteria. Accordingly, the action taken and timescales are at the discretion of the client.

The recommendations are as follows.

1. To aid in understanding of predator/prey relations within Lake Hjälmaren, gut content analysis of pikeperch and other key species at different life stages should be considered.

Particularly important would be young life stages of pikeperch to understand possible limiting factors for year class strength. This would also assist with the development of Condition 3.

2. A formal statistical analysis of past data on recruitment year class strength and subsequent catches in the fishery should be considered to strengthen future predictions based on this information.